

REMARKS

Claims 1 and 19 are amended herein to address the rejections thereto under 35 U.S.C. §112 and to clarify that which applicants regard as their invention. Applicants respectfully submit that amended claims 1 and 19 overcome the prior rejections thereto.

In the Office Action, claims 1-20 were rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,900,340 to Reich et al. ("Reich") or as being obvious over U.S. Patent No. 6,416,907 to Winder et al. ("Winder"). For the reasons set forth below, applicants respectfully submit that the presently amended claims are fully distinguished from *Reich* and *Winder*.

As amended herein, claim 1 recites a method of generating an optical lithography mask in which simplified mask patterns are generated from predetermined main shapes by eliminating detail from the predetermined main shapes while preserving geometrically relevant shape information in the simplified mask patterns. Then, associated shapes are generated relative to the simplified mask patterns. The mask is then generated to include the predetermined main shapes and the associated shapes, wherein the step of generating the associated shapes relative to the simplified mask patterns increases the number of edges of the predetermined main shapes which are assisted by the associated shapes.

Reich does not teach the features of the invention recited in claim 1. *Reich*

merely describes a different method in which a growing function is performed on a base shape by varying amounts to produce first and second shapes (*Reich*, claim 1). One of the first and second shapes is then subtracted from the other to produce subresolution assist features. Clearly, *Reich* does not teach generating simplified mask patterns by eliminating detail from the predetermined main shapes and then generating associated shapes relative to the simplified mask patterns.

Moreover, the similarity between *Reich* and other presently pending claims is at best superficial in that the only methods in which *Reich* recites steps including both "growing" and "shrinking" involve producing and using a "space shape". (*Reich*, claims 7, 11). A space shape is formed by growing and shrinking operations starting with a *plurality of original design shapes*. (claim 7 of *Reich*). The space shape is then intersected with an oversize shape produced by growing *all edges of the plurality of design shapes* to produce a biasing shape. *Id.* The biasing shape is then unioned with the plurality of original design shapes. (*Reich*, claim 7)

By contrast, applicants' claim 10 recites preserving a common region between a predetermined main shape as the simplified mask pattern for each of a plurality of predetermined main shapes and then generating the associated features relative to the simplified mask patterns.

Similarly, *Winder* does not teach the method recited in the claims as amended herein. The passage of *Winder* cited by the examiner (claim 9, for example), does not teach the feature of generating associated features relative to simplified mask

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patterns. Clearly, *Winder* does not teach generating simplified mask patterns by eliminating detail from the predetermined main shapes and then generating associated shapes relative to the simplified mask patterns.

Applicants' remaining claims including claims 18, 19, 20, 21 and 22 recite features similar to those discussed above which clearly distinguish the recited invention from *Reich* and *Winder*.

Support for the present amendments is provided, *inter alia*, at paragraphs [0050] and [0074] through [0084] of the Specification and FIG. 20.

In view of the present amendments and remarks, it is believed that the application is now in condition for allowance. If, for any reason, the examiner does not believe that such action can be taken at this time, it is requested that he telephone the undersigned at the number indicated below to discuss any issues that remain.

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The present amendment is filed together with a petition for a one month extension of time. It is believed that no other fees are due in connection with the amendment. However, if any other fees are required, authorization is given to debit the Deposit Account No. 09-0458 of the Assignee International Business Machines Corporation. If there is an overpayment, please credit the same account.

Respectfully submitted,
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By:


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